WHAT IS CLAIMED IS

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     1. A packet communication method of communication employing a packet having a transmission-source address and a destination address, comprising the steps of:

10   a) making a predetermined number of bits of the transmission-source address and a predetermined number of bits of the destination address of a packet be fixed addresses;

     b) a repeating node, which repeats the packet 15 from a transmission-source terminal first, converting the fixed address of the transmission-source address of the received packet into an address of a higher-rank station of said repeating node; and

     c) said repeating node converting the fixed 20 address of the destination address of the received packet into an address of a higher-rank station of a last repeating node for a destination terminal, and transferring the packet.

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     2. The method as claimed in claim 1, wherein the repeating node, which repeats the packet from the 30 transmission-source terminal first, converts the fixed address of the transmission-source address of the received packet into an address of a node having a table of an address of a higher-rank station of a last repeating node

for each terminal, when the address of the higher-rank
station of the last repeating node for the destination
terminal is not known, and transfers the packet.

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3.   The method as claimed in claim 2, wherein
the node having the table of the address of the higher-
10   rank station of the last repeating node for each terminal
converts the own address in the destination address of the
received packet into the address of the higher-rank
station of the last repeating node for a destination
terminal, and transfers the packet.

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4.   The method as claimed in claim 1, wherein:
20   the higher-rank station of the repeating node,
which repeats the packet from the transmission-source
terminal first, transfers the received packet without
changing the transmission-source address when the address
of the higher-rank station in the transmission-source
25   address of the received packet coincides with the address
of the own station, and
            converts the address of the higher-rank station
in the transmission-source address of the received packet
into the address of the own station when the address of
30   the higher-rank station in the transmission-source address
of the received packet does not coincide with the address
of the own station, and transfers the packet.

5.   The method as claimed in claim 4, wherein the higher-rank station of the repeating node, which repeats the packet from the transmission-source terminal first, further instructs the higher-rank station having

5   the transmission-source address originally written in the received packet to transfer a packet addressed to said transmission-source terminal to the own station, when the address of the higher-rank station in the transmission-source address of the received packet does not coincide

10   with the address of the own station, and

further instructs a node having the table of the address of the higher-rank station of the last repeating node for each terminal to update said table.

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6.   The method as claimed in claim 1, wherein the higher-rank station of the last repeating node for the

20   destination terminal transfers the received packet without changing the destination address, when the address of the higher-rank station in the destination address coincides with the address of the own station and no transfer instructions are given for the destination terminal, and

25   converts the address of the higher-rank station of the destination address of the received packet into an address of a higher-rank station of the destination of the instructed transfer, when the address of the higher-rank station in the destination address of the received packet

30   coincides with the address of the own station and transfer instructions are given for the destination terminal, and transfers the packet.

7. The method as claimed in claim 1, wherein the higher-rank station of the last repeating node for the destination terminal transfers the packet, when the address of the higher-rank station in the destination

5   address of the received packet does not coincide with the address of the own station,.

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8. The method as claimed in claim 1, wherein the last repeating node for the destination terminal converts the addresses of the higher-rank stations in the transmission-source address and destination address of the

15   received packet into the fixed addresses, and transfers the packet to the destination terminal.

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9. The method as claimed in claim 1, wherein, in a case where the destination terminal belongs to another network,

the transmission-source terminal transmits the

25   packet having an address given to the destination terminal as the destination address thereof;

the repeating node, which repeats the packet from the transmission-source terminal first, converts the fixed address in the transmission-source address of the

30   received packet into the address of the higher-rank station of said repeating node, and transfers the packet to a gateway station which provides an interface with the other network; and

said gateway station converts the address of the higher-rank station of the received packet into the fixed address, and transfers the packet into said other network.

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10. The method as claimed in claim 1, wherein, in a case where the transmission-source terminal belongs to another network,

said transmission-source terminal transmits the packet having an address given to the destination terminal as the destination address thereof; and

a gateway station which provides an interface with said other network converts the fixed address in the destination address of the received packet into the address of the higher-rank station of the last repeating node for said destination terminal, and transfers the packet.

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11. A node apparatus used in a packet communication system of communication employing a packet having a transmission-source address and a destination address, comprising:

a repeating part repeating the packet from a transmission-source terminal first, said packet having a predetermined number of bits of the transmission-source address and a predetermined number of bits of the destination address thereof made to be fixed addresses;

an address converting part converting the fixed

address of the transmission-source address of the received packet into an address of a higher-rank station of said node apparatus,

said address converting part further converting

5   the fixed address of the destination address of the received packet into an address of a higher-rank station of a last repeating node for a destination terminal of the packet; and

a transferring part transferring the packet.

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12.   The node as claimed in claim 11, wherein:

15   said address converting part converts the fixed address of the transmission-source address of the received packet into an address of a node having a table of an address of a higher-rank station of a last repeating node for each terminal, when the address of the higher-rank

20   station of the last repeating node for the destination terminal is not known; and

said transferring part transfers the packet.

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13.   A node apparatus used in a packet communication system of communication employing a packet having a transmission-source address and a destination

30   address, comprising:

an address converting part, which has a table of an address of a higher-rank station of a last repeating node for each terminal, converting the own address in the

destination address of a received packet into the address
of the higher-rank station of the last repeating node for
a destination terminal of said packet; and

a transferring part transferring the packet.

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14. A node apparatus used in a packet

10 communication system of communication employing a packet
having a transmission-source address and a destination
address, comprising:

an address converting part converting an address
of a higher-rank station in the transmission-source

15 address of a received packet into an address of the own
apparatus when the address of the higher-rank station in
the transmission-source address of the received packet
does not coincide with the address of the own apparatus,
before being transferred through a transferring part; and

20 said transferring part transferring the received
packet without changing the transmission-source address
through said address converting part when the address of
the higher-rank station in the transmission-source address
of the received packet coincides with the address of the

25 own apparatus.

30 15. The node as claimed in claim 14, further
comprising an instructing part instructing a higher-rank
station having the transmission-source address originally
written in the received packet to transfer a packet

addressed to said transmission-source terminal to the own
apparatus, when the address of the higher-rank station in
the transmission-source address of the received packet
does not coincide with the address of the own apparatus,
5   and

further instructing a node having a table of an
address of a higher-rank station of a last repeating node
for each terminal to update said table accordingly.

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16.   A node apparatus used in a packet
communication system of communication employing a packet
15   having a transmission-source address and a destination
address, comprising:

an address converting part converting an address
of a higher-rank station of the destination address of a
received packet into an address of a higher-rank station
20   of a destination of instructed transfer, when the address
of the higher-rank station in the destination address of
the received packet coincides with the address of the own
apparatus and transfer instructions are given for the
destination terminal, before being transferred through a
25   transferring part; and

said transferring part transferring the received
packet without changing the destination address through
the address converting part, when the address of the
higher-rank station in the destination address coincides
30   with the address of the own apparatus and no transfer
instructions are given for the destination terminal.

17. A node apparatus used in a packet communication system of communication employing a packet having a transmission-source address and a destination address, comprising:

5   a determining part determining whether or not an address of a higher-rank station in the destination address of a received packet does not coincide with an address of the own apparatus; and

          a transferring part transferring the packet,
10   when the address of the higher-rank station in the destination address of the received packet does not coincide with the address of the own apparatus as a result of the determination result of said determining part.

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18. A node apparatus used in a packet communication system of communication employing a packet
20   having a transmission-source address and a destination address, comprising:

          an address converting part converting addresses of higher-rank stations in transmission-source address and destination address of a received packet into fixed
25   addresses; and

          a transferring part transferring the packet to the destination terminal.

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19. A node apparatus used in a packet communication system of communication employing a packet

having a transmission-source address and a destination
address, said node providing an interface between
different networks, comprising:

an address converting part converting an address
5   of a higher-rank station of a received packet into a fixed
address; and

a transferring part transferring the packet into
another network.

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20.   A node apparatus used in a packet
communication system of communication employing a packet
15   having a transmission-source address and a destination
address, said node providing an interface between
different networks, comprising:

an address converting part converting a fixed
address in the destination address of a received packet
20   into an address of a higher-rank station of a last
repeating node for a destination terminal of the packet;
and

a transferring part transferring the packet.

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21.   A packet communication system of
communication employing a packet having a transmission-
30   source address and a destination address, comprising:

a transmission-side terminal making a
predetermined number of bits of the transmission-source
address and a predetermined number of bits of the

destination address of a packet be fixed addresses; and

a repeating node, which repeats the packet from said transmission-source terminal first, converting the fixed address of the transmission-source address of the
5 received packet into an address of a higher-rank station of said repeating node,

said repeating node converting the fixed address of the destination address of the received packet into an address of a higher-rank station of a last repeating node
10 for a destination terminal, and transferring the packet.

15 22. The system as claimed in claim 21, wherein said repeating node, which repeats the packet from the transmission-source terminal first, converts the fixed address of the transmission-source address of the received packet into an address of a node having a table of an
20 address of a higher-rank station of a last repeating node for each terminal, when the address of the higher-rank station of the last repeating node for the destination terminal is not known, and transfers the packet.

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23. The system as claimed in claim 22, wherein the node having the table of the address of the higher-
30 rank station of the last repeating node for each terminal converts the own address in the destination address of the received packet into the address of the higher-rank station of the last repeating node for a destination

terminal, and transfers the packet.

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24. The system as claimed in claim 21, wherein:

the higher-rank station of the repeating node, which repeats the packet from the transmission-source terminal first, transfers the received packet without

10 changing the transmission-source address when the address of the higher-rank station in the transmission-source address of the received packet coincides with the address of the own station, and

converts the address of the higher-rank station

15 in the transmission-source address of the received packet into the address of the own station when the address of the higher-rank station in the transmission-source address of the received packet does not coincide with the address of the own station, and transfers the packet.

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25. The system as claimed in claim 24, wherein

25 the higher-rank station of the repeating node, which repeats the packet from the transmission-source terminal first, further instructs the higher-rank station having the transmission-source address originally written in the received packet to transfer a packet addressed to said

30 transmission-source terminal to the own station, when the address of the higher-rank station in the transmission-source address of the received packet does not coincide with the address of the own station, and

further instructs a node having the table of the address of the higher-rank station of the last repeating node for each terminal to update said table.

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26. The system as claimed in claim 21, wherein the higher-rank station of the last repeating node for the

10 destination terminal transfers the received packet without changing the destination address, when the address of the higher-rank station in the destination address coincides with the address of the own station and no transfer instructions are given for the destination terminal, and

15 converts the address of the higher-rank station of the destination address of the received packet into an address of a higher-rank station of the destination of the instructed transfer, when the address of the higher-rank station in the destination address of the received packet

20 coincides with the address of the own station and transfer instructions are given for the destination terminal, and transfers the packet.

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27. The system as claimed in claim 21, wherein the higher-rank station of the last repeating node for the destination terminal transfers the packet, when the

30 address of the higher-rank station in the destination address of the received packet does not coincide with the address of the own station.

28. The system as claimed in claim 21, wherein the last repeating node for the destination terminal converts the addresses of the higher-rank stations in the transmission-source address and destination address of the

5   received packet into the fixed addresses, and transfers the packet to the destination terminal.

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29. The system as claimed in claim 21, wherein, in a case where the destination terminal belongs to another network,

the transmission-source terminal transmits the

15   packet having an address given to the destination terminal as the destination address thereof;

the repeating node, which repeats the packet from the transmission-source terminal first, converts the fixed address in the transmission-source address of the

20   received packet into the address of the higher-rank station of said repeating node, and transfers the packet to a gateway station which provides an interface with the other network; and

said gateway station converts the address of the

25   higher-rank station of the received packet into the fixed address, and transfers the packet into said other network.

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30. The system as claimed in claim 21, wherein, in a case where the transmission-source terminal belongs to another network,

said transmission-source terminal transmits the packet having an address given to the destination terminal as the destination address thereof; and

a gateway station which provides an interface

5 with said other network converts the fixed address in the destination address of the received packet into the address of the higher-rank station of the last repeating node for said destination terminal, and transfers the packet.

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